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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/758,848

01/16/2004

Prakash Parayil Mathew

138221 (15284US01)

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12/01/2006

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EXAMINER

SHAHRESTANI, NASIR

ART UNIT

PAPER NUMBER

3737

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/758,848

Applicant(s)

MATHEW ET AL.

Examiner

Nasir Shahrestani

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1 & 6-16** are rejected under 35 U.S.C. 102(b) as being anticipated by Philips (U.S. Patent No.: 6,213,947).

**Regarding claims 1, 6-11, 13-16**, Philips teaches a method for improved ultrasound imaging comprising: Encoding an ultrasound signal with a code to produce an encoded ultrasound vector (fig. 1 - 20A); transmitting from a first location said encoded ultrasound vector at desired angles (fig. 12); receiving at a second location an encoded echo signal produced in response to said encoded ultrasound vector; and decoding said encoded echo signal using said code used to produce said encoded ultrasound vector (fig.1 – 22a, 22m, 24a, 24m); and obtaining an image of an object based on encoded ultrasound signals (column 9 lines 10-16). Philips further teaches wherein said transmitter comprises a transducer array (fig. 11), and distinct codes for each ultrasound signal within a frame (abstract)

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**Regarding claim 12 and 15**, it is inherent that the receiver would comprise a transducer element NOT used for transmitting said encoded ultrasound signal, and the signals are transmitted sequentially.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2-5 & 17-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Philips (U.S. Patent No.: 6,213,947) in view of Stein (US 2002/0100324)

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**Regarding claims 2-5**, Philips teaches all the limitations of claim 1 but does not teach Determining a position of a structure producing an encoded echo in response to impact based on a time of transmission or based on an angle of transmission. Stein teaches a method for determining a position using a device (element 310) for determining a location of a transducer/echo producing structure based on time of transmission and angle of transmission (par. [0069]). It would have been obvious to one of ordinary skill at the time of the invention to have modified the method as taught by Philips and to have further included the steps of determining a position of an echo producing structure such as a transducer as taught by Stein in

order to provide for measuring ultrasonic properties of an object in a manner which is independent of travel time measurements within the object (see Stein par. [0032]).

**Regarding Claims 17-21**, Philips teaches all the limitations of claim 10 but does not teach a processor for determining position of a scatterer based on a time of transmission or angle of transmission. Stein teaches a processor (computer 50) that is used in conjunction with a timer (timer 48) and a scatterer (transducer 44) that emits echoes at various angles and is capable of determining a position of said scatterer (par. [0069]). It would have been obvious to one of ordinary skill at the time of the invention to have modified the method as taught by Philips and to have further included the steps of determining a position of an echo producing structure such as a transducer as taught by Stein using a processor in order to provide for minimal human intervention and to provide for measuring ultrasonic properties of an object in a manner which is independent of travel time measurements within the object (see Stein par. [0032]).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nasir Shahrestani whose telephone number is 571-270-1031. The examiner can normally be reached on Mon.-Thurs: 7:30-5:00, 2nd Friday: 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Nasir Shahrestani  
11/17/2006



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